

Appl. No. 09/540,128
Amtd. dated April 28, 2006
Reply to Office Action of 11/28/05

PATENT
Docket: 990253

IN THE CLAIMS

Please amend the claims as follows:

1. Canceled

2. (Currently amended) The wireless communication system of Claim 4,
wherein during the coarse search, the number of non-coherent passes is reduced in
comparison with the fine second search.

3. (Currently amended) The wireless communication system of Claim 4,
wherein during the coarse search, an the integration interval is reduced in comparison with
the fine search.

4. (Currently amended) A wireless communication system comprising:
a plurality of base stations, each configured to transmit a PN encoded pilot signal at a
different time offset than other base stations; and
at least one remote unit configured to perform a coarse search of an entire PN space in
accordance with a set of coarse search parameters, and to use the results of the coarse search
of the entire PN space to select portions of the PN space for a fine search, and to perform the
fine search of the selected portions of the PN space in accordance with a set of fine search
parameters for use in a second search of selected portions of PN space;

wherein the coarse search comprises coarse search parameters selected by dividing a
PN space into segments, selecting a number of noncoherent passes, and selecting an
integration interval; and

wherein if, during the coarse search, sufficient energy is detected at a first offset
corresponding to a first PN encoded pilot signal of a first base station, a first fine search
parameter is selected to specify an expected range of PN offsets over which the first PN
encoded pilot signal is likely to be received.

5. (Currently amended) A remote unit in a wireless communication system
comprising:

Appl. No. 09/540,128
Amdt. dated April 28, 2006
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PATENT
Docket: 990253

a search engine configured to receive a set of coarse search parameters, to conduct a coarse search of an entire PN space in accordance with the set of coarse search parameters to detect for signals in the wireless communication system, and to output search results for the entire PN space, to receive a set of fine search parameters and a selection of portions of the PN space, to conduct a fine search of the portions of the PN space in accordance with the set of fine search parameters, and to output search results for the portions of the PN space;

a memory configured to receive and store the search results from the search engine and to output the search results; and

a controller configured to pass the set of coarse search parameters to the search engine, and to receive the search results for the entire PN space from the memory, to select the portions of the PN space as likely to contain a pilot signal based on the search results for the entire PN space, and to pass the set of fine search parameters and the selection of the portions of the PN space to the search engine;

wherein the search engine performs searches using the search parameters passed by the controller, the search parameters comprising:

a set of coarse search parameters used to search a PN space, wherein the coarse search parameters are selected by dividing a PN space into segments, selecting a number of noncoherent passes from a range of noncoherent passes, and selecting an integration interval from a plurality of predetermined integration intervals; and

a set of fine search parameters used to search portions of PN space most likely to contain a pilot signal, the likelihood of the space containing a pilot signal being determined by the controller after evaluating results of the coarse search;

wherein if, during the coarse search, sufficient energy is detected at a first offset corresponding to a first PN encoded pilot signal of a first base station, a first fine search parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.

5

4

6. (Currently amended) The remote unit of Claim 5, wherein the set of coarse search parameters comprises a number of non-coherent passes selected from a range of non-coherent passes, and wherein the number of non-coherent passes in the set of coarse search parameters is less than in the set of fine search parameters.

Appl. No. 09/540,128
Amdt. dated April 28, 2006
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PATENT
Docket: 990253

6. (Currently amended) The remote unit of Claim 5, wherein the set of coarse search parameters comprises an integration interval selected from a plurality of predetermined integration intervals, and wherein the integration interval in the set of coarse search parameters is less than in the set of fine search parameters.

8. Canceled

9. (Currently amended) The method of Claim 11 wherein the number of non-coherent passes in the coarse search is less than in the fine search.

10. (Currently amended) The method of Claim 11 wherein the integration interval in the coarse search is less than in the fine search.

11. (Currently amended) A method of initially acquiring a base station by a wireless remote unit, the method comprising:

selecting a set of coarse search parameters comprising a number of noncoherent passes and an integration interval, wherein the coarse search parameters are selected by dividing a PN space into segments, selecting a number of noncoherent passes, and selecting an integration interval;

conducting a coarse search of an entire PN space for a pilot signal according to the set of coarse search parameters;

storing results of the coarse search in a memory;

selecting portions of the entire PN space based on the results of the coarse search of the entire PN space examining the results of the coarse search stored in memory to select portions of the entire PN space upon which to conduct fine searching according to fine search parameters; and

conducting a fine search of the selected portions of the entire PN space according to a set of fine search parameters, and

wherein if, during the coarse search, sufficient energy is detected at a first offset corresponding to a first PN-encoded pilot signal of a first base station, a first fine search parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.

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PATENT
Docket: 990253

16
12. (Currently amended) The method of Claim 11 further comprising:
storing all measured signal levels identified during the coarse search which exceed a threshold level and a corresponding PN offsets.

17
13. (Currently amended) A remote unit in a wireless communication system configured to perform a search for a pilot signal, the remote unit comprising:

means for selecting a set of coarse search parameters comprising a number of noncoherent passes and an integration interval, wherein the coarse search parameters are selected by dividing a PN space into segments, selecting a number of noncoherent passes from a range of noncoherent passes, and selecting an integration interval from a plurality of predetermined integration intervals;

means for conducting a coarse-coarse search of an entire PN space for a pilot signal according to the set of coarse search parameters;

means for storing results of the coarse search;

means for selecting portions of the entire PN space based on the results of the coarse search of the entire PN space means for examining the stored results of the coarse search to select portions of the entire PN space upon which to conduct fine searching according to fine search parameters; and

means for conducting a fine search of the selected portions of the entire PN space according to a set of the fine search parameters;

wherein if, during the coarse search, sufficient energy is detected at a first offset corresponding to a first PN-encoded pilot signal of a first base station, a first fine search parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.

14. Canceled

15. Canceled

16. Canceled

Appl. No. 09/540,128
Amtd. dated April 28, 2006
Reply to Office Action of 11/28/05

PATENT
Docket: 990253

17. Canceled

18. (Currently amended) A method of searching in a wireless communication system the method comprising:

transmitting a PN encoded pilot signal from a plurality of base stations, each base station configured to transmit said PN encoded pilot signal at a different time offset than other base stations;

performing a coarse search of an entire PN space in accordance with a set of coarse search parameters by at least one remote unit, wherein the coarse search comprises coarse search parameters selected by dividing a PN space into segments, selecting a number of noncoherent passes, and selecting an integration interval;

selecting portions of the entire PN space based on results of the coarse search of the entire PN space; and

performing a fine search of the selected portions of the entire PN space in accordance with a set of selecting-fine search parameters in response to results of the search, said fine search parameters for use in a second search of selected portions of PN space; and

wherein if, during the coarse search, sufficient energy is detected at a first offset corresponding to a first PN encoded pilot signal of a first base station, a first fine search parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.

19. Canceled

~~7~~ 20. (Currently amended) The remote unit of claim 5, wherein the entire PN space is divided into equal segments, and wherein for the coarse search the search engine is configured to search one segment at a time until all segments are searched are equal.

~~8~~ 21. (Currently amended) The remote unit of claim 8, wherein the entire PN space is divided into unequal segments, and wherein for the coarse search the search engine is configured to search one segment at a time until all segments are searched are unequal.

Appl. No. 09/540,128
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~~9~~ 22. (New) The remote unit of Claim 5, wherein the portions of the PN space are for peaks exceeding a predetermined signal strength identified by the search results for the entire PN space.

~~10~~ 23. (New) The remote unit of Claim 5, wherein the portions of the PN space are for a predetermined number of strongest peaks identified by the search results for the entire PN space.

~~11~~ 24. (New) The remote unit of Claim 5, wherein the portions of the PN space are for a region of possible PN offsets for a base station.

~~12~~ 25. (New) The remote unit of Claim 5, wherein the portions of the PN space are identified by a preferred base station.